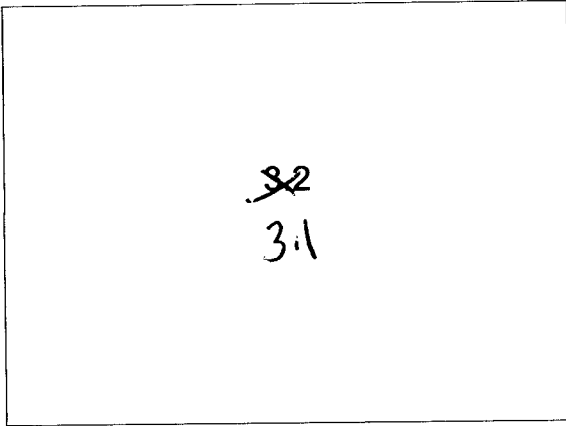


Name \_\_\_\_\_

Period \_\_\_\_\_

①




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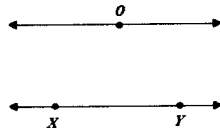
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②

**Parallel lines**

- Lines that are coplanar and do not intersect

What is the symbol for  
parallel lines?

How do you mark a drawing  
to show two lines are parallel?

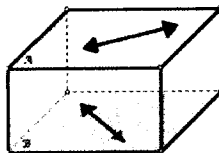
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③

**Skew lines**

- Lines that do not intersect and are not coplanar

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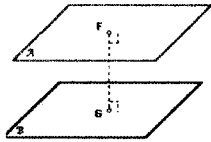
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4.

### Parallel planes



- Two planes that do not intersect

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5.

### Parallel planes




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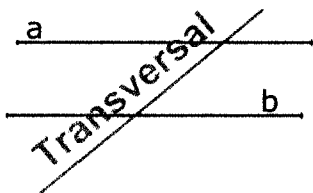
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6.

### Transversal



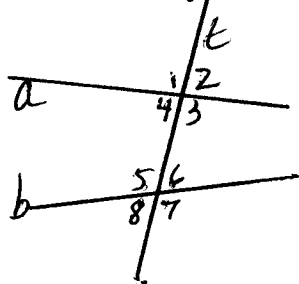
- Line that intersects two or more coplanar lines at different points

Mark lines  $a$  &  $b$  to show they are parallel

Write "line  $a$  is parallel to line  $b$ " using symbols

7.

Two lines cut by transversal




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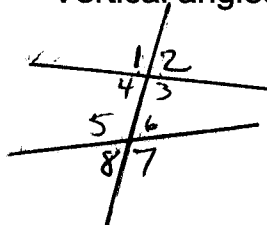
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8.

Vertical angles



- Angles opposite each other at the intersection of two lines

Name 4 pairs of vertical angles

1. \_\_\_\_\_

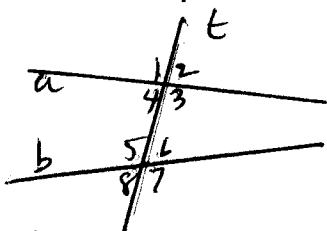
2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

9.

Linear pairs



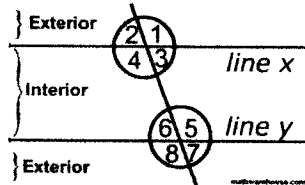
- Angles that are adjacent and form a straight line

Name 8 linear pairs

1	_____	5	_____
2	_____	6	_____
3	_____	7	_____
4	_____	8	_____

10.

### Interior/Exterior angles



- Interior angles are inside the two parallel lines
- Exterior angles are outside the two // lines

Name the 4 interior angles

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Name the 4 exterior angles

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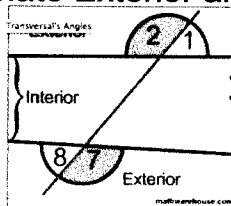
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11.

### Alternate Exterior angles



- Two angles that lie outside the two lines and on opposite sides of the transversal

Name two pairs of  
alternate exterior angles

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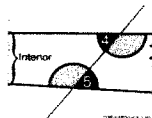
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12.

### Alternate interior angles



- Two angles that lie between the two lines and on opposite sides of the transversal

Name two pair of  
alternate interior angles

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13.

### Corresponding angles

Two angles that occupy corresponding positions

Name 4 pairs of  
corresponding angles

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14.

### Same side interior/Consecutive

Two angles are consecutive if they lie between two lines on the same side of the transversal

Name two pair of  
same side interior angles

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15.

### Parallel Postulate

If there is a line and a point not on the line, then there is exactly one line through the point parallel to the given line.

There is exactly one line through P parallel to  $l$ .

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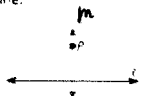
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16.

### Perpendicular Postulate

If there is a line and a point not on the line, then there is exactly one line through the point perpendicular to the given line.



There is exactly one line through  $P$  perpendicular to  $l$ .

What is the symbol for perpendicular lines?

Write "line  $l$  is perpendicular to line  $m$ " in symbols.

**LESSON**

**7-2**

**Practice B**

**Parallel and Perpendicular Lines**

1. Measure the angles formed by the transversal and the parallel lines.  
Which angles seem to be congruent?

\_\_\_\_\_

\_\_\_\_\_

In the figure, line  $m \parallel$  line  $n$ . Find the measure of each angle.

2.  $\angle 1$

\_\_\_\_\_

3.  $\angle 2$

\_\_\_\_\_

4.  $\angle 5$

\_\_\_\_\_

5.  $\angle 6$

\_\_\_\_\_

6.  $\angle 8$

\_\_\_\_\_

7.  $\angle 7$

\_\_\_\_\_

In the figure, line  $a \parallel$  line  $b$ . Find the measure of each angle.

8.  $\angle 2$

\_\_\_\_\_

9.  $\angle 5$

\_\_\_\_\_

10.  $\angle 6$

\_\_\_\_\_

11.  $\angle 7$

\_\_\_\_\_

12.  $\angle 4$

\_\_\_\_\_

13.  $\angle 3$

\_\_\_\_\_

In the figure, line  $r \parallel$  line  $s$ .

14. Name all angles congruent to  $\angle 2$ .

\_\_\_\_\_

15. Name all angles congruent to  $\angle 7$ .

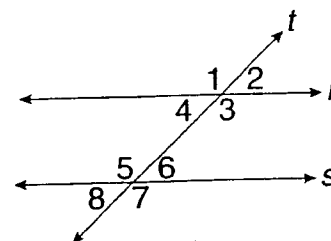
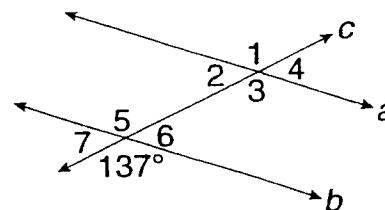
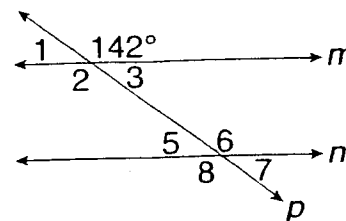
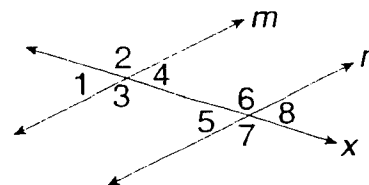
\_\_\_\_\_

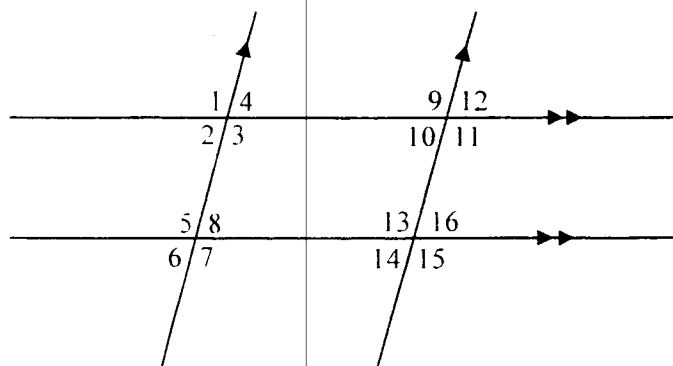
16. Name three pairs of supplementary angles.

\_\_\_\_\_

17. Which line is the transversal?

\_\_\_\_\_





Complete.

- 1) If  $m\angle 2 = 85$ , then  $m\angle 6 =$  \_\_\_\_\_ and  $m\angle 7 =$  \_\_\_\_\_
- 2) If  $m\angle 8 = 83$ , then  $m\angle 16 =$  \_\_\_\_\_ and  $m\angle 10 =$  \_\_\_\_\_
- 3) If  $m\angle 9 = 105$ , then  $m\angle 10 =$  \_\_\_\_\_ and  $m\angle 16 =$  \_\_\_\_\_
- 4) If  $m\angle 15 = 96$ , then  $m\angle 8 =$  \_\_\_\_\_ and  $m\angle 1 =$  \_\_\_\_\_

Identify each pair of angles in exercises 5-8 as vertical, corresponding, alternate interior, or same-side interior.

5)  $\angle 14$  and  $\angle 8$

6)  $\angle 9$  and  $\angle 13$

7)  $\angle 11$  and  $\angle 16$

8)  $\angle 1$  and  $\angle 3$

9) If two parallel lines are cut by a transversal, then corresponding angles are \_\_\_\_\_.

10) If two parallel lines are cut by a transversal, then alternate interior angles are \_\_\_\_\_.

11) If two parallel lines are cut by a transversal, then same-side interior angles are \_\_\_\_\_.



**Study Guide**

3, 13 blue Book

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**Parallel Lines and Planes**

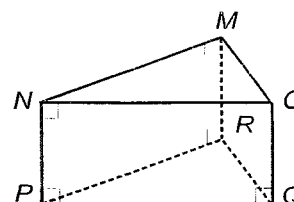
When planes do not intersect, they are said to be **parallel**. Also, when lines in the same plane do not intersect, they are parallel. But when lines are not in the same plane and do not intersect, they are **skew**.

**Example:** Name the parts of the triangular prism shown at the right. Sample answers are given.

parallel planes: planes  $PQR$  and  $NOM$

parallel segments:  $\overline{MO}$  and  $\overline{RQ}$

skew segments:  $\overline{MN}$  and  $\overline{RQ}$

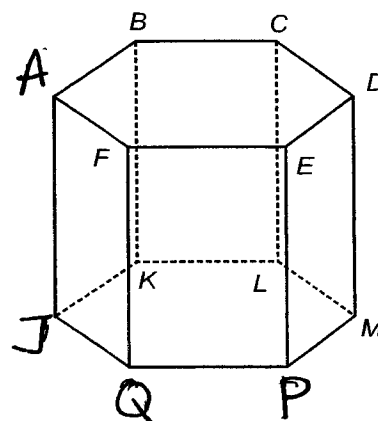


**Refer to the figure in the example.**

1. Name two more pairs of parallel segments.
2. Name two more segments skew to  $\overline{NM}$ .
3. Name a segment that is parallel to plane  $MRQ$ .

**Name the parts of the hexagonal prism shown at the right.**

4. three segments that are parallel to  $\overline{BC}$
5. three segments that are parallel to  $\overline{JK}$
6. a segment that is skew to  $\overline{QP}$
7. the plane that is parallel to plane  $AJQ$



**Skills Practice**

3.1 Blue Book

**Parallel Lines and Planes***Describe each pair of segments in the prism as parallel, skew, or intersecting.*

1.  $\overline{EG}, \overline{ML}$

2.  $\overline{LK}, \overline{EG}$

3.  $\overline{LK}, \overline{GH}$

4.  $\overline{EG}, \overline{GH}$

5.  $\overline{JN}, \overline{ML}$

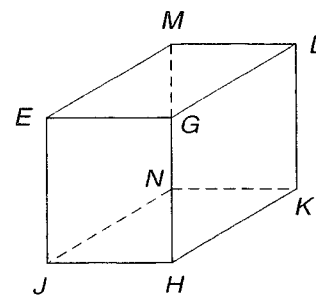
6.  $\overline{LK}, \overline{NK}$

7.  $\overline{NK}, \overline{JH}$

8.  $\overline{EG}, \overline{HK}$

9.  $\overline{MN}, \overline{LK}$

10.  $\overline{MN}, \overline{GL}$

*Use the figure for Exercises 1–10. Name the parts of the rectangular prism.*

11. six planes

12. all pairs of parallel planes

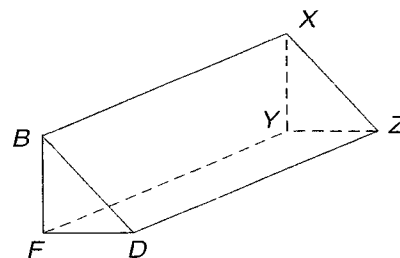
13. all segments skew to  $\overline{JH}$ 14. all segments parallel to  $\overline{EG}$ 15. all segments intersecting  $\overline{ML}$ 16. all segments parallel to  $\overline{JN}$ *Name the parts of the triangular prism.*

17. all pairs of intersecting planes

18. all pairs of parallel segments

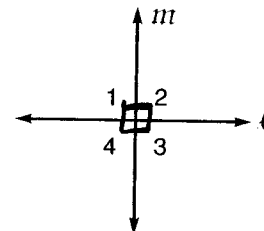
19. all pairs of skew segments

20. all points at which three segments intersect



# Perpendicular Lines

**Perpendicular lines** are lines that intersect to form four right angles.



$\overline{AB} \perp \overline{FE}$ ,  $\overline{AE} \perp \overline{GC}$  and  $C$  is the midpoint of  $\overline{AE}$ . Determine whether each of the following is true or false.

1.  $\overline{GV} \perp \overline{AE}$

2.  $\overline{AE} \perp \overline{FV}$

3.  $\angle 4 \cong \angle 1$

4.  $\angle 3 \cong \angle 4$

5.  $m\angle 1 + m\angle 2 = 90$

7.  $m\angle 1 + m\angle 5 = 90$

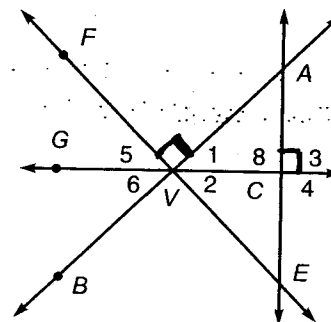
9.  $m\angle AVF = 90$

11.  $\angle GVA$  is a right angle.

13.  $\angle 6$  and  $\angle 3$  are supplementary.

15.  $\angle FVB$  and  $\angle 4$  are complementary.

17.  $\overline{AE}$  is the only line perpendicular to  $\overline{GC}$  at  $C$ .



6.  $m\angle 3 + m\angle 4 = 180$

8.  $m\angle 4 = m\angle 1 + m\angle 2$

10.  $m\angle BVE = 90$

12.  $\angle 3$ ,  $\angle 4$ , and  $\angle 8$  are right angles.

14.  $\angle 2$  and  $\angle 6$  are complementary.

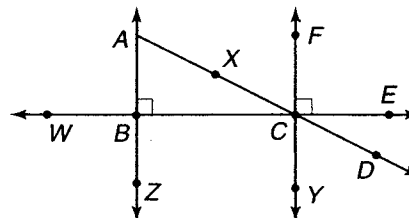
16.  $\angle AVE$  and  $\angle BVF$  are supplementary.

## Skills Practice

*Blue*

### Perpendicular Lines

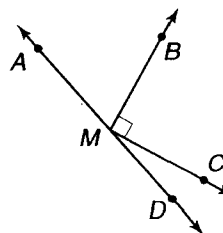
$\overline{AB} \perp \overline{BE}$ ,  $\overline{FC} \perp \overline{BE}$ , and point  $X$  is the midpoint of  $\overline{AC}$ . Determine whether each of the following is true or false.



1.  $\angle XCB \cong \angle DCE$
2.  $\angle BCY$  is a right angle.
3.  $\angle FCE$  and  $\angle FCX$  are supplementary.
4.  $\overline{AB} \perp \overline{BC}$
5.  $\angle FCD$  is a right angle.
6.  $\angle FCX$  and  $\angle XCB$  are complementary.
7.  $m\angle WBZ > m\angle WBA$
8.  $\overline{FC}$  is the only line  $\perp$  to  $\overline{WE}$  at  $C$
9.  $\angle FCE$  and  $\angle YCE$  are supplementary.
10.  $\overline{AX} \cong \overline{XC}$
11.  $\angle FCD \cong \angle WBA$
12.  $\overline{AX} \cong \overline{FC}$
13.  $\overline{AB} \perp \overline{AC}$
14.  $\angle XCF \cong \angle DCY$

$\overline{BM} \perp \overline{MC}$ ,  $\overline{MA}$  and  $\overline{MD}$  are opposite rays.

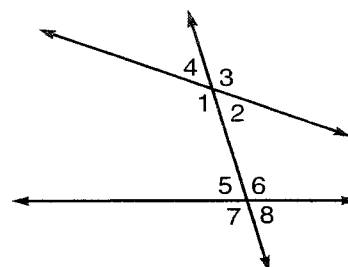
15. If  $m\angle DMC = 25$ , find  $m\angle AMB$ .
16. If  $m\angle AMB = 72$ , find  $m\angle DMC$ .
17. If  $m\angle DMC = 2x + 2$  and  $m\angle AMB = 8x - 2$ , find  $m\angle DMC$  and  $m\angle AMB$ .



## Study Guide 3.3 Blue Book

**Parallel Lines and Transversals**

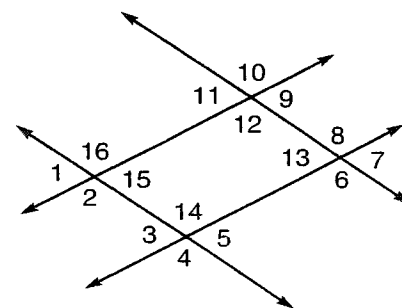
A line that intersects two or more lines in a plane at different points is called a **transversal**. Eight angles are formed by a transversal and two lines.



Types of Angles		
Angle	Definition	Examples
<b>interior</b>	lie between the two lines	$\angle 1, \angle 2, \angle 5, \angle 6$
<b>alternate interior</b>	on opposite sides of the transversal	$\angle 1$ and $\angle 6, \angle 2$ and $\angle 5$
<b>consecutive interior</b>	on the same side of the transversal	$\angle 1$ and $\angle 5, \angle 2$ and $\angle 6$
<b>exterior</b>	lie outside the two lines	$\angle 3, \angle 4, \angle 7, \angle 8$
<b>alternate exterior</b>	on opposite sides of the transversal	$\angle 3$ and $\angle 7, \angle 4$ and $\angle 8$

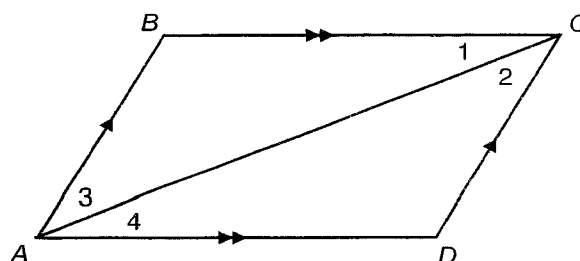
Identify each pair of angles as alternate interior, alternate exterior, consecutive interior, or vertical.

- $\angle 6$  and  $\angle 10$
- $\angle 14$  and  $\angle 13$
- $\angle 14$  and  $\angle 6$
- $\angle 1$  and  $\angle 5$
- $\angle 12$  and  $\angle 15$
- $\angle 2$  and  $\angle 16$



In the figure,  $\overline{AB} \parallel \overline{DC}$  and  $\overline{BC} \parallel \overline{AD}$ .

- For which pair of parallel lines are  $\angle 1$  and  $\angle 4$  alternate interior angles?
- For which pair of parallel lines are  $\angle 2$  and  $\angle 3$  alternate interior angles?

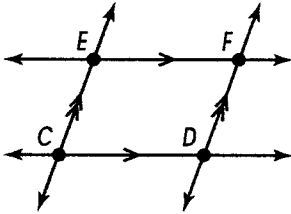


# Practice • Parallel Lines with Transversals

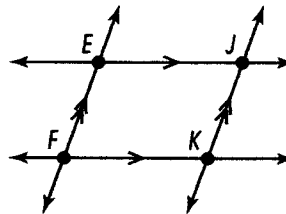
Lessons 4.3 and 4.4

Identify the parallel lines in each diagram.

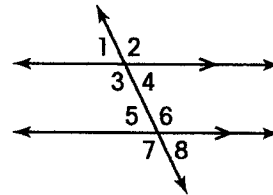
1.



2.



Use the diagram on the right.  
Name all pairs of angles for each exercise.



3. alternate interior angles

4. vertical angles

5. same-side interior angles

6. supplementary angles

7. corresponding angles

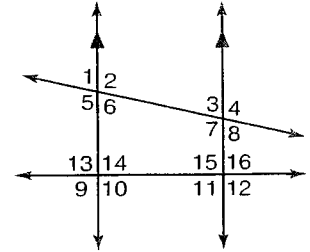
**Skills Practice**

3.3 Blue Book

**Parallel Lines and Transversals**

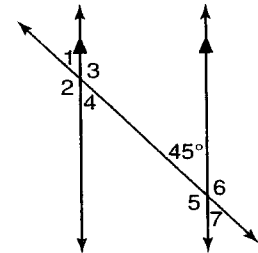
Identify each pair of angles as alternate interior, alternate exterior, consecutive interior, or vertical.

1.  $\angle 1$  and  $\angle 6$
2.  $\angle 2$  and  $\angle 3$
3.  $\angle 2$  and  $\angle 7$
4.  $\angle 1$  and  $\angle 8$
5.  $\angle 2$  and  $\angle 5$
6.  $\angle 10$  and  $\angle 11$
7.  $\angle 13$  and  $\angle 12$
8.  $\angle 5$  and  $\angle 4$
9.  $\angle 3$  and  $\angle 8$
10.  $\angle 14$  and  $\angle 15$
11.  $\angle 9$  and  $\angle 14$
12.  $\angle 14$  and  $\angle 11$



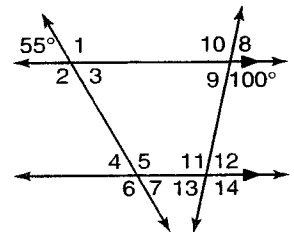
Find the measure of each angle. Give a reason for each answer.

13.  $\angle 7$
14.  $\angle 4$
15.  $\angle 3$
16.  $\angle 6$



Find the measure of each angle. Give a reason for each answer.

17.  $\angle 1$
18.  $\angle 3$
19.  $\angle 12$
20.  $\angle 11$



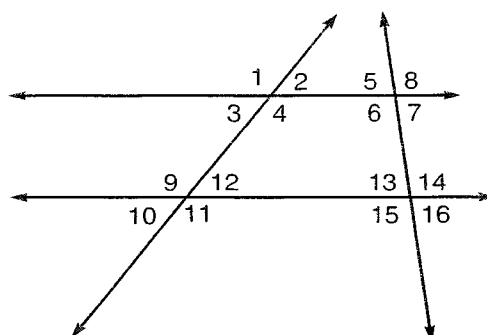
## Practice

3.3 Blue Book

### Parallel Lines and Transversals

Identify each pair of angles as alternate interior, alternate exterior, consecutive interior, or vertical.

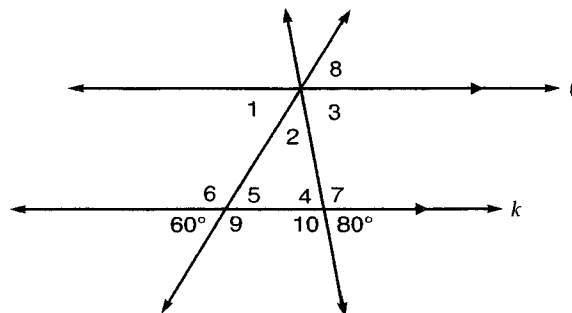
1.  $\angle 9$  and  $\angle 11$
2.  $\angle 3$  and  $\angle 9$
3.  $\angle 3$  and  $\angle 12$
4.  $\angle 8$  and  $\angle 6$
5.  $\angle 8$  and  $\angle 15$
6.  $\angle 4$  and  $\angle 5$
7.  $\angle 1$  and  $\angle 7$



Exercises 1-7

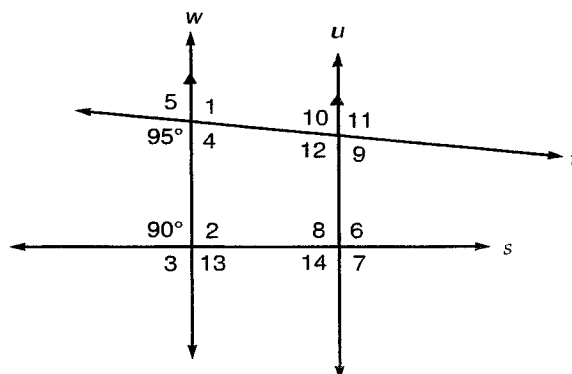
Find the measure of each angle.  
Give a reason for each answer.

8.  $\angle 5$
9.  $\angle 4$
10.  $\angle 6$
11.  $\angle 1$



Exercises 8-13

12.  $\angle 8$
13.  $\angle 10$
14.  $\angle 1$
15.  $\angle 2$
16.  $\angle 10$
17.  $\angle 11$
18.  $\angle 8$
19.  $\angle 6$
20.  $\angle 5$
21.  $\angle 4$



Exercises 14-21



# 3.3

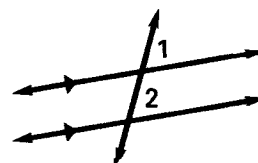
## Parallel Lines and Transversals

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- Goals**
- Prove and use results about parallel lines and transversals.
  - Use properties of parallel lines to solve problems.

### POSTULATE 15: CORRESPONDING ANGLES POSTULATE

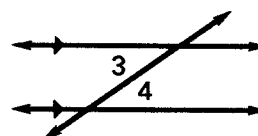
If two parallel lines are cut by a transversal, then the pairs of corresponding angles are \_\_\_\_\_.



$$\angle 1 \cong \angle 2$$

### THEOREM 3.4: ALTERNATE INTERIOR ANGLES

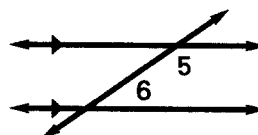
If two parallel lines are cut by a transversal, then the pairs of alternate interior angles are \_\_\_\_\_.



$$\angle 3 \cong \angle 4$$

### THEOREM 3.5: CONSECUTIVE INTERIOR ANGLES

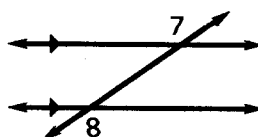
If two parallel lines are cut by a transversal, then the pairs of consecutive interior angles are \_\_\_\_\_.



$$m\angle 5 + m\angle 6 = 180^\circ$$

### THEOREM 3.6: ALTERNATE EXTERIOR ANGLES

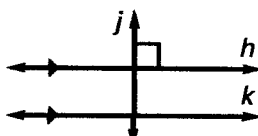
If two parallel lines are cut by a transversal, then the pairs of alternate exterior angles are \_\_\_\_\_.



$$\angle 7 \cong \angle 8$$

### THEOREM 3.7: PERPENDICULAR TRANSVERSAL

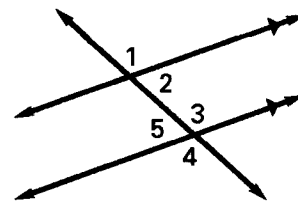
If a transversal is perpendicular to one of two parallel lines, then it is \_\_\_\_\_ to the other.



$$j \perp k$$

**Example 1****Using Properties of Parallel Lines**

Given that  $m\angle 1 = 118^\circ$ , find each measure.  
Tell which postulate or theorem you use.

a.  $\angle 2$ b.  $\angle 3$ c.  $\angle 5$ d.  $\angle 4$ **Solution**

a.  $m\angle 2 = 180^\circ - m\angle \underline{\quad} = \underline{\quad}^\circ$

b.  $m\angle 3 = m\angle \underline{\quad} = \underline{\quad}^\circ$

c.  $m\angle 5 = m\angle \underline{\quad} = \underline{\quad}^\circ$

d.  $m\angle 4 = m\angle \underline{\quad} = \underline{\quad}^\circ$

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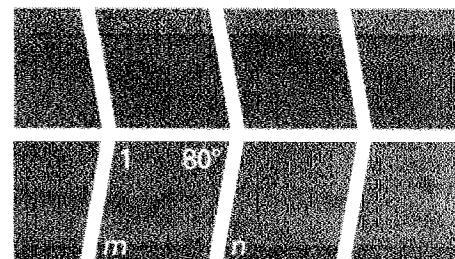
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**Example 2****Using Properties of Parallel Lines**

**Parking Lot Design** In the diagram of the parking lot,  $m \parallel n$ .  
What is  $m\angle 1$ ?

**Solution**

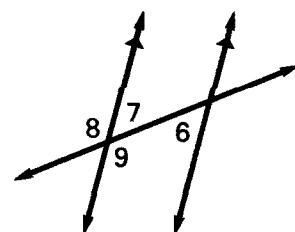
$m\angle 1 + 80^\circ = \underline{\quad}^\circ$

$m\angle 1 = \underline{\quad}^\circ$

Property of Equality



**Checkpoint** Given that  $m\angle 6 = 53^\circ$ , find the angle measure.  
Tell which postulate or theorem you use.

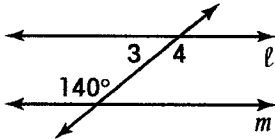
1.  $\angle 7$ 2.  $\angle 8$ 3.  $\angle 9$ 

# Practice • Interior Angles

Lessons 4.5 and 4.6

In each diagram,  $\ell \parallel m$ . Find the measure of  $\angle 3$  and  $\angle 4$ .

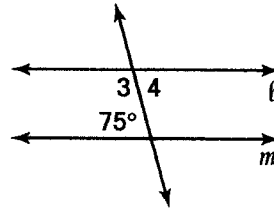
1.



$\angle 3$  is \_\_\_\_\_.

$\angle 4$  is \_\_\_\_\_.

2.

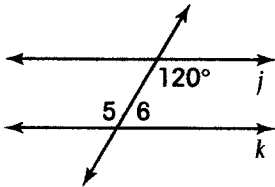


$\angle 3$  is \_\_\_\_\_.

$\angle 4$  is \_\_\_\_\_.

In each diagram,  $j \parallel k$ . Find the measure of  $\angle 5$  and  $\angle 6$ .

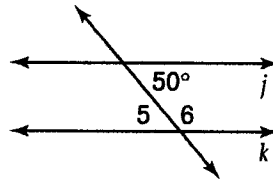
3.



$\angle 5$  is \_\_\_\_\_.

$\angle 6$  is \_\_\_\_\_.

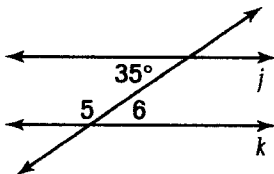
4.



$\angle 5$  is \_\_\_\_\_.

$\angle 6$  is \_\_\_\_\_.

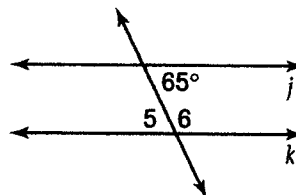
5.



$\angle 5$  is \_\_\_\_\_.

$\angle 6$  is \_\_\_\_\_.

6.



$\angle 5$  is \_\_\_\_\_.

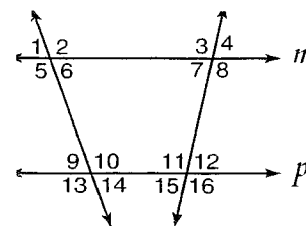
$\angle 6$  is \_\_\_\_\_.

## Skills Practice

3.3 Blue

### Transversals and Corresponding Angles

In the figure,  $m \parallel p$ . Name all angles congruent to the given angle. Give a reason for each answer.


1.  $\angle 1$ 

2.  $\angle 7$ 

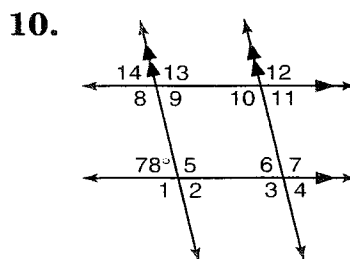
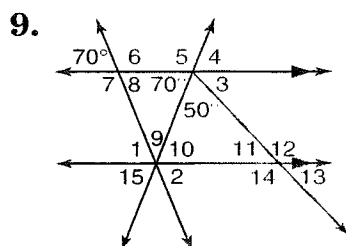
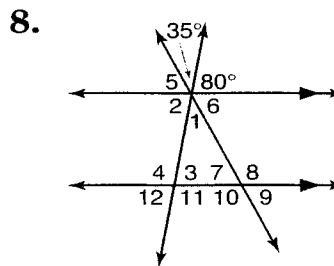
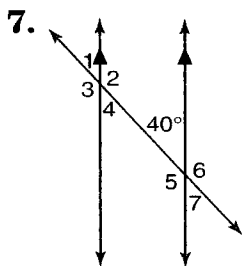
3.  $\angle 13$ 

4.  $\angle 8$ 

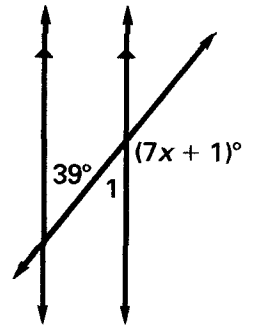
5.  $\angle 9$ 

6.  $\angle 16$ 

Find the measure of each numbered angle.



Use properties of parallel lines to find the value of  $x$ .



**Solution**

$$m\angle 1 = \underline{\hspace{1cm}}^\circ$$

$$m\angle 1 + (7x + 1)^\circ = \underline{\hspace{1cm}}^\circ$$

$$\underline{\hspace{1cm}}^\circ + (7x + 1)^\circ = \underline{\hspace{1cm}}^\circ$$

$$7x = \underline{\hspace{1cm}}$$

$$x = \underline{\hspace{1cm}}$$

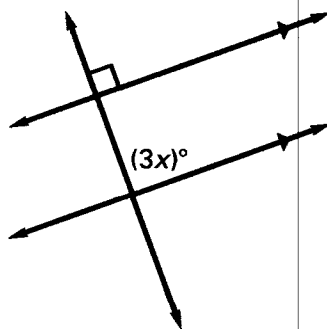
Substitute.

Subtract.

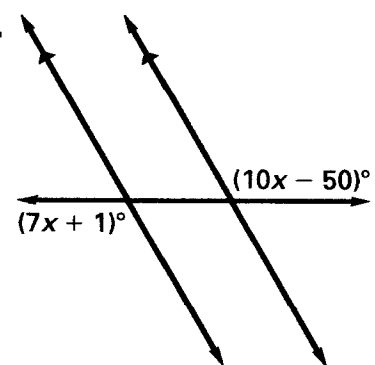
Divide.

✓ **Checkpoint** Use properties of parallel lines to find the value of  $x$ .

4.



5.



**Study Guide** 3.3 Blue Book**Transversals and Corresponding Angles**

If two parallel lines are cut by a transversal, then the following pairs of angles are congruent.

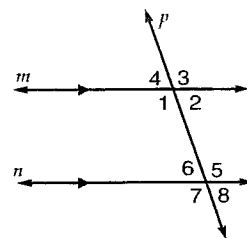
corresponding angles  
alternate interior angles  
alternate exterior angles

If two parallel lines are cut by a transversal, then consecutive interior angles are supplementary.

**Example:** In the figure  $m \parallel n$  and  $p$  is a transversal. If  $m\angle 2 = 35$ , find the measures of the remaining angles.

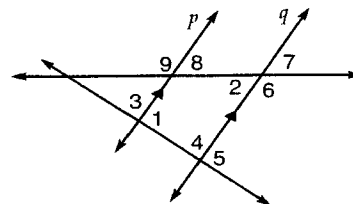
Since  $m\angle 2 = 35$ ,  $m\angle 8 = 35$  (corresponding angles).  
Since  $m\angle 2 = 35$ ,  $m\angle 6 = 35$  (alternate interior angles).  
Since  $m\angle 8 = 35$ ,  $m\angle 4 = 35$  (alternate exterior angles).

$m\angle 2 + m\angle 5 = 180$ . Since consecutive interior angles are supplementary,  $m\angle 5 = 145$ , which implies that  $m\angle 3$ ,  $m\angle 7$ , and  $m\angle 1$  equal 145.

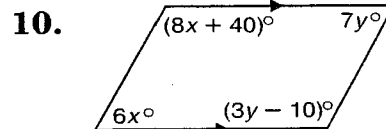
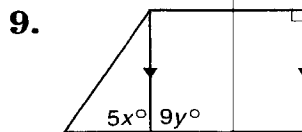
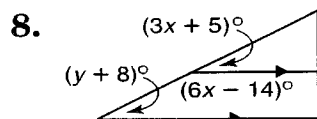


In the figure at the right  $p \parallel q$ ,  $m\angle 1 = 78$ , and  $m\angle 2 = 47$ . Find the measure of each angle.

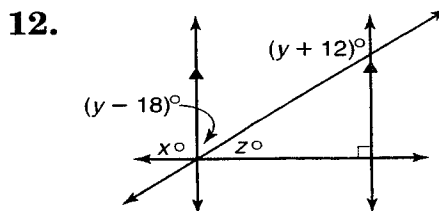
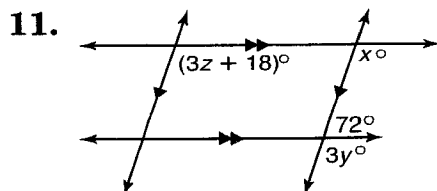
1.  $\angle 3$
2.  $\angle 4$
3.  $\angle 5$
4.  $\angle 6$
5.  $\angle 7$
6.  $\angle 8$
7.  $\angle 9$



Find the values of  $x$  and  $y$ , in each figure.



Find the values of  $x$ ,  $y$ , and  $z$  in each figure.

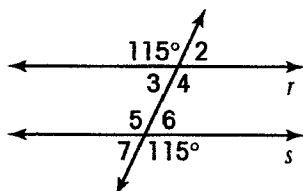


# Practice • Corresponding Angles

## Lesson 4.7

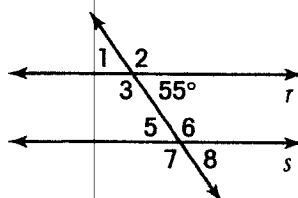
In each diagram,  $r \parallel s$ . Find the measure of each angle named.

1.



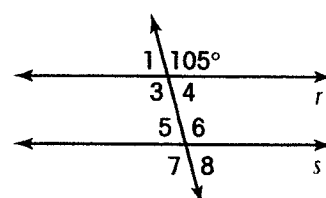
$\angle 5$  is \_\_\_\_\_.

2.



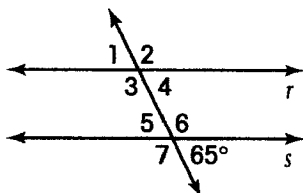
$\angle 8$  is \_\_\_\_\_.

3.



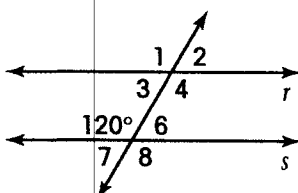
$\angle 6$  is \_\_\_\_\_.

4.



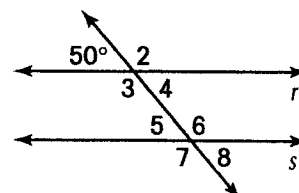
$\angle 1$  is \_\_\_\_\_.

5.



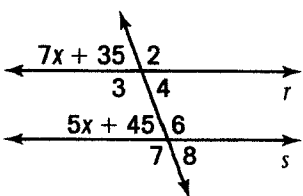
$\angle 2$  is \_\_\_\_\_.

6.



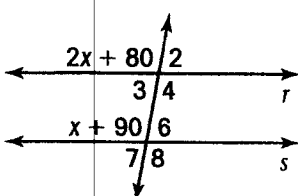
$\angle 5$  is \_\_\_\_\_.

7.



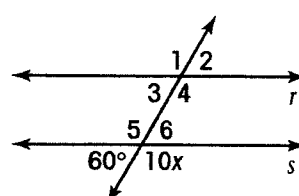
$\angle 7$  is \_\_\_\_\_.

8.



$\angle 8$  is \_\_\_\_\_.

9.



$\angle 1$  is \_\_\_\_\_.

## Study Guide

3.4 Blue Book

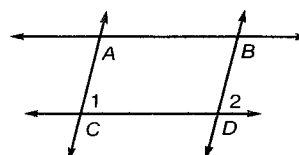
### Proving Lines Parallel

Suppose two lines in a plane are cut by a transversal. With enough information about the angles that are formed, you can decide whether the two lines are parallel.

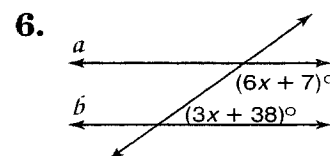
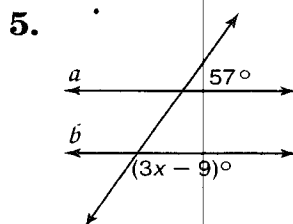
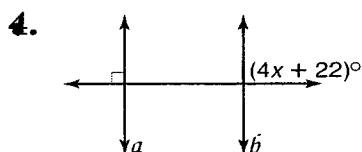
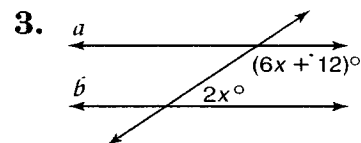
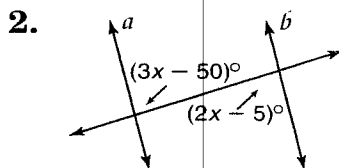
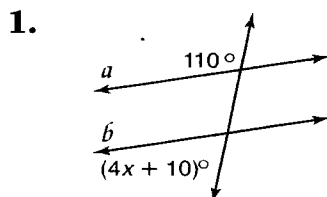
IF	THEN
corresponding angles are congruent, alternate interior angles are congruent, alternate exterior angles are congruent, consecutive interior angles are supplementary, the lines are perpendicular to the same line,	the lines are parallel.

**Example:** If  $\angle 1 = \angle 2$ , which lines must be parallel? Explain.

$\overline{AC} \parallel \overline{BD}$  because a pair of corresponding angles are congruent.



Find  $x$  so that  $a \parallel b$ .



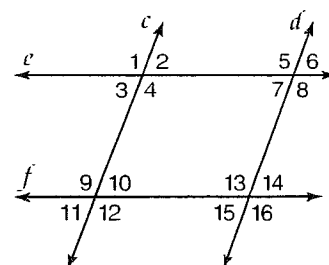
Given the following information, determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.

7.  $\angle 1 \cong \angle 8$

8.  $\angle 4 \cong \angle 9$

9.  $m\angle 7 + m\angle 13 = 180$

10.  $\angle 9 \cong \angle 13$



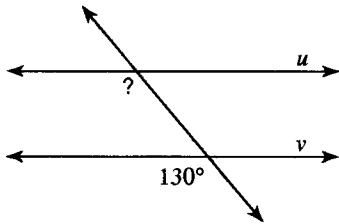


## Proving Lines Parallel

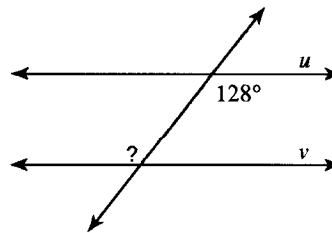
Date \_\_\_\_\_ Period \_\_\_\_\_

Find the measure of the indicated angle that makes lines  $u$  and  $v$  parallel.

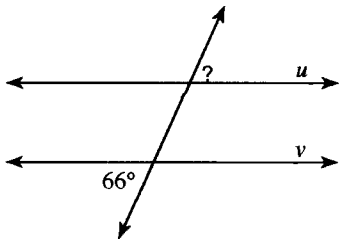
1)



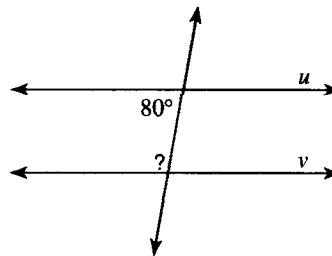
2)



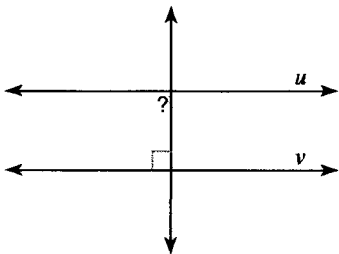
3)



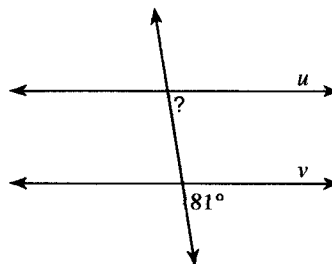
4)



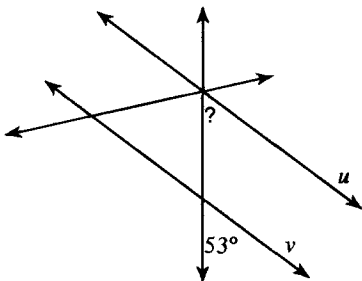
5)



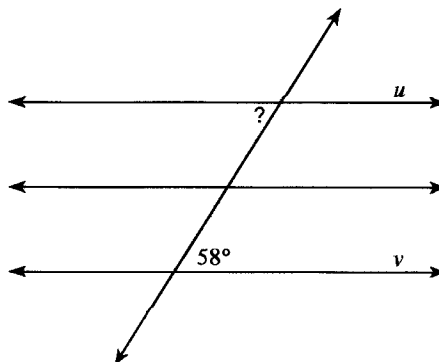
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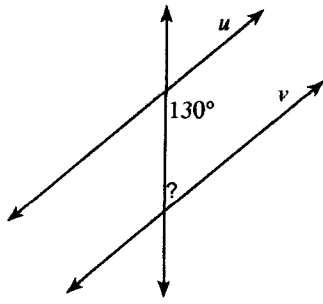
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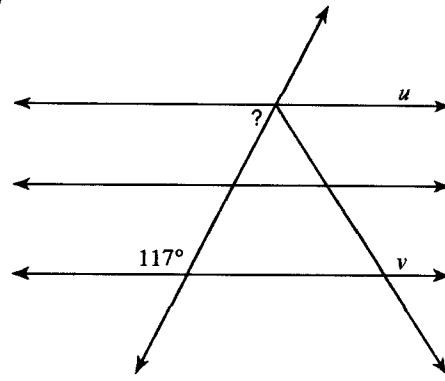
8)



9)

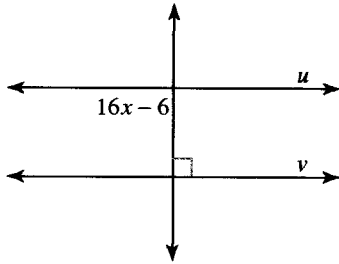


10)

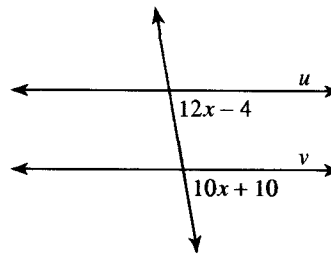


Find the value of  $x$  that makes lines  $u$  and  $v$  parallel.

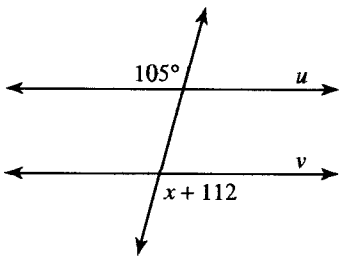
11)



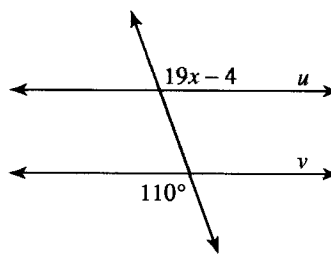
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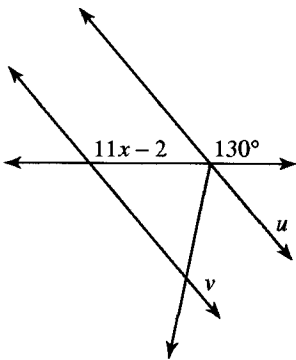
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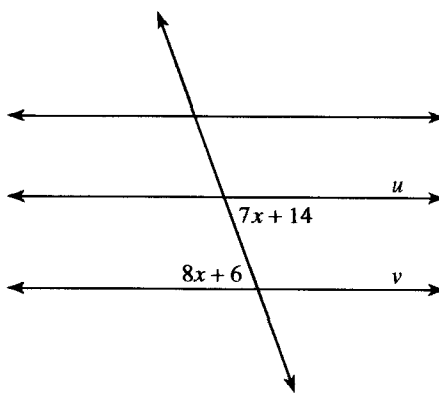
14)



15)



16)



**Critical thinking questions:**

17) For question #16, find a value of  $x$  that makes lines  $u$  and  $v$  intersect.

18) Even if the lines in question #16 were not parallel, could  $x = 25$ ? Why or why not?